modern appliances and labour-saving machinery. They are being rapidly extended and developed, and are certain to exert a profound influence on the industry of the East, not only in India, but also in Ceylon, Java, Manchuria, China, Japan, Australia, the United States, the Argentine, etc., with all of which countries they are building up an export trade in iron and steel castings, machinery, fencing wire, nails, tools, galvanised products, tinplate and enamel ware, etc. An interesting feature is the description of what is being done to promote the intellectual and physical well-being of the workers by the provision of hospitals, convalescent homes, schools, co-operative stores, credit societies, an industrial bank, a concert hall, a restaurant, a reading room, etc.

There can be no question that India is on the eve of most momentous changes, political, social, and industrial—changes which have been largely affected and accelerated by the war. All who are interested in her future will do well to study carefully this official account of her present industrial position. It will amply repay perusal.

THE REFORM OF THE CALENDAR.

THOSE who have concerned themselves with the question of a reformed calendar will find much interesting matter in a report[1] published by a committee which was appointed early in the year by the Paris Société d'Encouragement pour l'Industrie nationale. In 1884 the Abbé Croze, chaplain of La Roquette prison, suggested a competition of schemes to M. Flammarion's journal, *L'Astronomie,* and presented anonymously prizes to the value of 5000 francs, with the rather incompatible conditions that the first day of the year should be always a Sunday, and that the week of seven days and the year of twelve months should be retained. From that time until the outbreak of war, enthusiasts had been making proposals, and, though they had reached little agreement among themselves, they had succeeded in 1910 in inducing the International Congress of Chambers of Commerce at London to pass a resolution in favour of reform, and the Swiss Government to promise diplomatic action. The projects have been reported from time to time in these columns. Since the close of the war, proposals of the kind have been renewed, and the report of the French committee is a useful document.

For the Western world there are two calendars of importance existing. There is the Gregorian calendar and there is the ecclesiastical calendar, founded on the Council of Nicea, which rules the movable festivals of the Churches. Hence there are two quite distinct questions before the reformers. One is to remove the conventional luni-solar element from the latter, and to fix Easter so far as possible relative to the Gregorian calendar. Another is to reform the Gregorian calendar itself, more or less drastically. But yet a third plan has been proposed by a French engineer, M. Paul Delaporte, which consists practically in ignoring these questions and in using a special subsidiary calendar purely for the purposes of industry.

The French committee, under Gen. Sebert, has formulated a number of resolutions which appear sensible and on the whole conservative. This is perhaps natural, in view of the peculiar French experience of ill-considered calendars. It supports the proposal to keep the variation of Easter within the narrowest possible limits—a week instead of a lunar month. This view has the assent of all lay opinion, and it is believed that it is no longer opposed by any ecclesiastical authority. On this point agreement in detail should be reached quickly and carried into effect without delay. Another resolution favours the substitution of the Gregorian for the Julian calendar, a hope which political events may have brought nearer to realisation. On the general manner of reform the committee expresses itself in favour of the continuity of the week. This excludes at once a number of schemes, the latest of which was proposed by M. Deslandres. At the same time, it threatens to make the change so slight as scarcely to be worth making at all. But it leaves open such a possibility of a perpetual calendar as the succession of thirty-five, twenty-eight, twenty-eight days in the month, with thirty-five days in December when the date ends in 0 or 5 generally and twenty-eight days in all other years, with the addition of those dates ending in twenty-five and seventy-five and those divisible by 400. This rule is not more complicated than the corresponding Gregorian rule, and the objection lies not so much to the variation in the length of the year as to the unequal months. Of course, a symmetrical calendar is out of the question, and no change in the present system can offer serious advantage without raising some such objection and meeting with firm opposition in consequence.

M. Delaporte, mentioned above, is properly impressed with the difficulty of ousting the present calendar, and suggests his scheme as an auxiliary, not as a substitute for it. Strictly speaking, his project does not seem to be a calendar at all, because it lacks continuity. He takes the Gregorian year as he finds it, and divides it from the beginning into thirteen months of four weeks each. This is the Comtist calendar without trimmings, but the one or two days at the end of the year must be provided for "à part." He furnishes in the report different mechanical and tabular modes of exhibiting the correspondence between his scheme or "Chronos" and the Gregorian calendar for a year. He claims that the method of reckoning weeks continuously through the year has proved itself advantageous in industrial practice. It is very possible. No doubt the advantage would be increased by uniformity of practice secured by agreement over a wide area. But the ordinary diary gives for each date the number of days elapsing from the beginning of the year, and if on this basis a business man cannot divide up his year to suit the requirements of his calling, suggestions from outside will scarcely help him.

[1] "Commission pour la réforme du calendrier." Bulletin de la Société d'Encouragement pour l'Industrie nationale, tome cxxxi., p. 70.

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At any rate, no scientific liability is involved if he persists in the use of the necessarily unequal calendar month when a more convenient uniform period might be substituted. The French committee approves of M. Delaporte's economic calendar for its own special purposes, and recognises that it stands apart from the question of a civil calendar properly so called. H. C. P.

NOTES.

PROMINENCE has been given in the daily papers to an interview with Dr. J. O. Arnold, who has recently resigned from the chair of metallurgy at the University of Sheffield, relating to a new alloy tool-steel, the cutting powers of which are claimed to be far in advance of those of any rapid-cutting tools at present in the market. The element conferring this property is stated to be molybdenum. It was reported in the interview that Dr. Arnold had taken out British and American patents, but that, owing to the veto of the War Office, the Admiralty, and the Ministry of Munitions, he was not allowed to exploit his discovery, and that he was forbidden to communicate its details except under censorship to anyone in Great Britain. Meanwhile, representatives of the United States Government were said to be conducting inquiries in Sheffield. On December 19 it was announced, however, that Dr. Arnold had received notice from the Government that the restrictions had been removed. Until more information is forthcoming as to the precise chemical composition of the steel tools in question it will be well to suspend judgment on the matter. That rapid-cutting tools can be made with molybdenum as the alloy basis has been known for many years. Such tools, however, have hitherto been regarded as peculiarly sensitive to heat conditions, and therefore liable to injury by improper treatment. This has stood in the way of their exploitation in practice.

MORE than ninety years ago alcohol was synthesised from ethylene gas by Hennel. The gas was absorbed in sulphuric acid, with which it combined to form ethyl hydrogen sulphate. On distilling this with water alcohol was obtained in the distillate. Until recently the process has remained a purely laboratory operation. During the war, however, investigations were made into the practicability of utilising for the commercial production of alcohol the small proportion of ethylene present in the gas given off from coke-ovens. A good deal of progress was made and the possibility proved, but the process was not fully worked out. It appears that this has now been successfully accomplished. In a paper read at a meeting of the Cleveland Institution of Engineers, Middlesbrough, Mr. E. Bury, of the Skinningrove Iron and Steel Works, states that practical working has given a yield of 1·6 gallons of alcohol per ton of coal carbonised. The best results were obtained by absorbing the ethylene at a temperature of 60°–80° C. It is calculated that the coal used for coke-making in this country would yield more than 23,000,000 gallons of alcohol yearly, and the ethylene present in ordinary coal-gas, if similarly treated, would supply a further 27,000,000 gallons.

WE have received from the Royal Statistical Society a copy of a petition which has been forwarded to the Prime Minister urging the immediate appointment of a Royal Commission or Select Committee to inquire into the existing methods of the collection and presentation of public statistics and to report on the means of improvement. The lack of co-operation between the different Departments charged with the preparation of statistics, and the consequent lack of co-ordination between their publications, excellent though these are in many respects, and the absence of any sufficient information on points that are now of the first importance (*e.g.* wages, incomes, and home production), are so notorious that some action in the direction indicated is most urgently called for. Adequate information is the very basis of right reform, but in scarcely any case is it forthcoming. The petition received the most widespread support from members of both Houses, from learned societies, from county and municipal authorities, and from those interested in social questions and the use of statistics generally—support which will, we hope, secure its acceptance.

THE Electricity Supply Bill has had many vicissitudes in its passage through Parliament. In its final form it elicited little opposition, if no great enthusiasm. The appointment of Commissioners is universally welcomed. They can do much to co-ordinate the working of new schemes, and can effect great economies by standardisation. They will erect one or two super-stations which will effect an economy of fuel. They will probably also use a certain number of internal-combustion engines, which, theoretically at least, have a higher economy than steam turbines. The appointment of district boards with powers of compulsory purchase was strongly opposed by the electric supply companies, mainly on the ground that it was a breach of the Parliamentary bargain made in 1888. It was pointed out that electric supply was initiated by private enterprise, and that many of the pioneer companies had an anxious and unremunerative time in their early days. To take away the opportunity they had of bettering their financial position in the few remaining years of their concession was not just. The Government, influenced by the strong opposition to the suggested district boards, and possibly also by the approach of the end of the session, dropped all the contentious proposals. There is now a golden opportunity for the companies, both private and municipal, to enter into combination as "joint electricity authorities" for themselves, and it would be good policy for them to make a move in this direction, but at present we see no signs of such a movement. The proposals for district boards, which were all thoroughly discussed in Committee, will doubtless be revived either in this or in a future Parliament.

THE report of the Council of British Ophthalmologists on the desirability of a special qualification in ophthalmology presents a strong and well-considered case. The qualifications required by the principal hospitals of candidates for the post of ophthalmic surgeon usually the fellowship of the College of Surgeons of England, Edinburgh, or Ireland—furnish no evidence of special knowledge of ophthalmology. The council concludes that there should be a special examination for those who propose to devote themselves to this branch of medicine; and that, owing to the importance of a sound knowledge of the general principles of surgery, pathology, etc., this examination should form part of the examination for a higher degree or diploma, such as the M.S. or F.R.C.S., rather than that it should be a special examination in ophthalmology alone. The council rightly lays stress upon an exhaustive curriculum, including anatomy, pathology, optics, systematic and clinical ophthalmology, and operative surgery. The Council of British Ophthalmologists is doing excellent work in striving to improve the teaching and practice of ophthalmology. It has already reported upon the teaching of these subjects to undergraduates, the lighting of test types, and other matters. It deals

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